

ECE511/PSY511 PSYCHOPHYSICS
A Joint Offering by the School of Electrical and Computer Engineering
And the Department of Psychological Sciences
Purdue University
Fall 2005

HW #1 (Assigned: 09/06/05; Due: *before lecture on 09/13/05*)

Topic: Method of Constant Stimuli and Probit Analysis

- (1) Run yourself on *curvature detection* using the Method of Constant Stimuli, from the course website. Choose the “long” session and “yes” for feedback. Run Probit Analysis using SAS on your results. Discuss the results from probit analysis. Compute the 95% confidence interval for AL.
- (2) Run yourself on *line-length discrimination* using the Method of Constant Stimuli, from the course website. Choose the “long” session and “long” exposure time. Run Probit Analysis using SAS on your results. Discuss the results from probit analysis. Compute the 95% confidence interval for PSE.
- (3) Plot the data and the estimated psychometric function for both (1) and (2).

[*Hint 1*: Be brief and to the point in your discussion. Think about the points that you want to make before putting words on the paper. One to two pages (double spacing, preferably typed) of discussion is sufficient. Attach a copy of your data file and probit analysis results.]

[*Hint 2*: See attached Appendix for instructions on running probit analysis on SAS.]

Appendix

How to Run SAS for Homework Assignment #1

CREATE A DATA FILE

Run the experiment from the course website. At the end of the experiment, a data file window will pop up. Cut and paste the contents of this window to a text file in your home directory. Save your data file.

Here is a sample data file for subject XYZ:

```
Data XYZ;
input strength NUM RESP;
cards;
90.00 100 2
97.00 100 8
105.00 100 35
113.00 100 81
121.00 100 91
128.00 100 100
136.00 100 100
144.00 100 100
152.00 100 99
160.00 100 100
;
proc print;
title 'Muller-Lyer Illusion with Method of Constant Stimuli';
proc probit lackfit;
model RESP/NUM=strength;
run;
quit;
```

If you see extra “.” (period) or “,” (comma) in your data file, delete them.

Note that your data file should look the same as the above example except that (1) your initial, instead of “XYZ”, should appear in the first line; and (2) the actual numbers in the data columns would be different.

HOW TO RUN SAS

At the command prompt, type “sas”.

Four windows will appear with the names:

SAS: Explorer

SAS: Log – Untitled

SAS: Output – Untitled

SAS: Program Editor - Untitled

Click on the “SAS: Program Editor” window. Use the “FILE” menu to open your data file so it appears in this window. Click on the “RUN” menu and choose the “Submit” command. The title of the “SAS: Output” window changes to “SAS: Output – Untitled – PROC PROBIT running” for a brief period of time. When the probit analysis is done, click on the FILE menu in the output window. You can save the results in either DATA FILE format (.dat) or RTF FILE format (.rtf).